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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/713,654	11/15/2000	Jonathan Sidney Edelson		3701

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EXAMINER

LE, DANG D

ART UNIT PAPER NUMBER

2834

DATE MAILED: 05/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/713,654

Applicant(s)

EDELSON

Examiner

Dang D Le

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-89 is/are pending in the application.
- 4a) Of the above claim(s) 68-82 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-67 and 83-89 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because it is not dated.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following features must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings must show the following features (but not limited to):

- The two winding terminals per phase and the inverter terminals in claim 34 and the mesh connection in claims 34 and 83.
- Two winding terminals in claim 35.
- Half bridge output stages in claims 36 and 38.
- Full span concentrated windings in claim 37
- The skip number in claims 39, 41, 44, 46-50 and other related claims.
- The phase angle difference in claim 40.
- The variable electrical phase angle in claims 42 and 43.
- The mesh subsets in claim 51.

- The second mesh connection in claim 84.
- The contactor arrangements in claim 86.
- The switches in claim 87.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because it contains the word "comprising" in line 1. Correction is required. See MPEP § 608.01(b).
4. The disclosure is objected to because of the following informalities:
 - Replace "Fig. 2 illustrates" with – Figures 2A-2E illustrate – in page 4, line 17.
 - Replace "Fig. 3 illustrates" with – Figures 3A-3D illustrate – in page 4, line 19.
 - In addition, the amendment filed 4/1/02 is not in a good condition because there is a black wide straight mark going through every pages of the amendment. As a result, many words cannot be read. Appropriate correction is required.

Claim Objections

5. Claim 50 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 50 depends on claim 16, which is canceled. It is assumed that claim 50 depends on claim 35.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 34-67 and 83-89 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification and Figure 1 do not clearly show the mesh connection claimed in claims 34 and 83. The drawings do not clearly show exactly how the winding terminals of the phases connected to the terminals of the inverter. Many claimed features in other claims are not shown in the drawings as being objected to and explained above.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 34-67 and 83-89 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 34 and 83 are indefinite because it is not clearly understood how the mesh connection is carried out.

Other claims are neither fully understood because many claimed features are not shown in the drawings.

In addition, there is insufficient antecedent basis for the following limitations in the claims. Claims 39 and 84 recite the limitation "the highest possible skip number" in line 2. Claim 42 recites the limitation "the selectable synthesis" in line 2. Claims 44 and 46 recite the limitation "the two terminals of each windings" in line 3. Claim 45 recites the limitation "said electrical phase variability" in line 2. Claim 49 recites the limitation "the two terminals of different windings" in line 4. Claim 67 recites the limitation "the drive waveform" in line 3.

It is neither clear what a fundamental phase relation and a third harmonic phase relation means in claims 40, 42, 43, 53, 55, 56, 58 and what a minimum electrical phase relation and a fundamental electrical phase relation means in claims 47 and 48.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

11. Claims 34, 35, 37, 39-67 and 83-89 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuznetsov.

Regarding claim 34, Kuznetsov shows a high phase order induction machine drive system, comprising:

- An induction motor having more than three phases (6 phases, Figures 5A and 5B), and having at least two winding terminals per phase (Figure 5B), and
- An inverter system (Figure 5B) for the synthesis of a plurality of phases of alternating current wherein said alternating current having variable voltage, variable frequency and variable electrical phase angle (column 28, lines 58-67 and Figure 10), said inverter system comprising inverter terminals electrically connected to said winding terminals with a mesh connection (Figure 5B).

Regarding claim 35, it is noted that Kuznetsov also shows said at least two winding terminals comprising two winding terminals.

Regarding claim 37, it is noted that Kuznetsov also shows said motor being wound with full span concentrated windings.

Regarding claim 39, it is noted that Kuznetsov also shows said mesh connection having the highest possible skip number ($S=0$) between inverter terminals.

Regarding claim 40, it is noted that Kuznetsov also shows said two winding terminals of each of said phases driven by the inverter system with a phase angle difference of close to but not exactly 120 electrical degrees (inherently since there can be no phase angle that equals exactly 120 degrees) when said inverter system is synthesizing output of fundamental phase relation.

Regarding claim 41, it is noted that Kuznetsov also shows said motor comprising N (6) phases where N is either a multiple of 3 or not, and wherein if N is a multiple of 3, said mesh connection being arranged with a skip number of $N/3$ ($6/3 = 2$, Figures 6A and 6B), and wherein if N is not a multiple of 3, said mesh connection being arranged with a skip number of $(N/3)-1$ rounded to the nearest integer.

Regarding claims 42-67, it is noted that Kuznetsov also shows all of the limitations of the claimed invention.

Regarding claim 83, it is noted that Kuznetsov also shows a high phase order motor having more than three phases (6 phases, Figures 5A and 5B), connected to inverter output elements with a mesh connection (Figure 5B).

Regarding claim 84, it is noted that Kuznetsov also shows the skip number of a mesh connection being the highest skip number possible ($S=0$) that allows for rotational symmetry.

Regarding claim 85, it is noted that Kuznetsov also shows a second mesh connection for additional of alternative connection between the inverter and the motor (Figured 6A and 6B).

Regarding claim 86, it is noted that Kuznetsov also shows contactor arrangements for connecting the motor and inverter with said second mesh connection.

Regarding claim 87, it is noted that Kuznetsov also shows the windings of said motor comprising a plurality of turns, and further comprising switches to operate the turns in parallel.

Regarding claim 88, it is noted that Kuznetsov also shows said mesh connection having a skip number of zero.

Regarding claim 89, it is noted that Kuznetsov also shows said mesh connection having a skip number of $(N/3)-1$, rounded to the nearest integer.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuznetsov in view of Takita.

Regarding claim 36 and 38, Kuznetsov shows all of the limitations of the claimed invention except for said inverter system comprising half bridge output stages.

Takita shows an inverter system comprising half bridge output stages (Figures 6B and 8B) for the purpose of reducing the number of transistors.

Since Kuznetsov and Takita are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the inverter system with half bridge output stages as taught by Takita for the purpose discussed above.

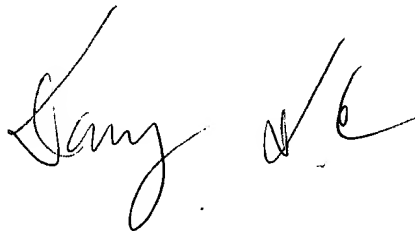
Information on How to Contact USPTO

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



DDL
April 30, 2002

